List of Abstracts Presented and Published:


5. Synthesis of 1,10-Bis-(3-phenylimino-6-aryl/alkylimino-[1,2,4,5]-dithiadiazinan-4-yl)-decane-1,10-diones and their antimicrobial activity, *AOCCB*, **105** (2006).

List of Research Papers Communicated:

1. Synthesis of 1,8-bis-1,3,4-thiadiazolo (3,4-C)-1,2,4-triazoles and their antimicrobial activity, Communicated, *Tetrahedron Letters*.

2. Synthesis and antimicrobial activity of bis-1,3,4-thiadiazoles, bis-1,2,4-triazoles, Communicated, *Indian J. Chem*.


4. Synthesis of 1,10-bis-(3-phenylimino-6-aryl/alkylimino-[1,2,4,5]-dithiadiazinan-4-yl)-decane-1,10-diones and their antimicrobial activity, Communicated, *J. Heterocyclic Chem*.


O-21: SIMPLE AND ONE STEP SYNTHESIS OF 2-HYDRAZINO-5-ARYL/ALKYL AMINO 1,3,4-TIADIAZOLES.

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Synthesis of novel 2-hydrazino-5-aryl/alkyl amino 1,3,4-thiadiazoles (IV) have been synthesized directly and indirectly following the interaction of thiocarbohydrazide (TCH) and aryl/alkyl isothiocyanates in alcohol medium and from 1-(N-aryl/alkyl thioamido)-3-thiocarbohydrazide by self condensation in alcoholic medium, respectively. The condensation of thiocarbohydrazide and aryl/alkyl isothiocyanates in refluxing ethanol medium proceeded to give the title compound (IV) directly with evolution of hydrogen sulphide gas. The condensation of TCH and aryl/alkyl isothiocyanates in benzene medium did not afford title compounds (IV) instead 1-(N-aryl/alkyl thioamido)-3-thiocarbohydrazides (III) were isolated. These on self condensation in alcoholic medium afforded title compounds (IV).
OO-45 : SYNTHESIS OF 1,8-BIS-(2-ARYL/ALKYLAMINO-1,3,4-THIADIAZOL-5-YL)-OCTANES AND THEIR ANTIMICROBIAL STUDY

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Synthesis of several 1,8-bis (2-aryl/alkyl amino-1,3,4-thiadiazol-5-yl)-octanes (IV) have been carried out by the interaction of bis (N-aryl/alkyl thiocarbamido)-sebacic acid diamides (III) and phosphoric acid. The (III) have been obtained by the interaction of sebacic acid dihydrazide (II) and different aryl/alkyl isothiocyanates (I) in 1:2 ratio.

The interaction of (III) and phosphoric acid was carried out for 1½ hr at room temperature with constant stirring. The reaction mixture on addition of water afforded crystalline solid. Solids were recrystallized from ethanol, were found to be non-desulphurizable when boiled with alkaline plumbite solution. The compounds (IV) on benzylation in 1:2 ratio afforded benzoyl derivatives (V). The structures of all these compounds were established on the basis of elemental analysis, IR and PMR spectral studies.

The title compounds (IV) were tested for their antimicrobial activity against E. coli, B. subtilis, S. aureus, P. vulgaris, Shigella F.
Antimicrobial Activity and Synthesis of 3,5-Diphenylimino-4-(2’-Substituted Benzylidene Amino) Phenyl-1,2,4-Dithiazolidines

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Key Words: Antimicrobial activity, synthesis, 1,2,4-dithiazolidines.

Novel 3,5-diphenylimino-4-(2’-substituted benzylidene amino) phenyl-1,2,4-dithiazolidines (Va-h) have been synthesized. The interaction of o-phenylene diamine (I) and phenyl isothiocyanate in CHCl₃ medium, afforded 1-phenyl-3-(2’-amino) phenyl thiocarbamide (II). Compounds (II) on condensation with different aliphatic and aromatic aldehydes in refluxing CHCl₃ medium, yielded the compounds (IIIa-h). Compounds (II) as well as (IIIa-h) were found to be desulphurizable when boiled with alkaline lead acetate solution. Compounds (IIIa-h) were then reacted with N-phenyl-S-chloro-isothiocarbamoyl chloride to give the title compounds (Va-h).

The compounds (Va-h) were found to be non-desulphurizable on heating with alkaline lead acetate solution indicating the absence of >C = S group. These on bromination in 1:1 ratio with bromine in glacial acetic acid yielded dibromo derivatives.

The structure of these synthesized compounds were established on the basis of classical, chemical transformation, elemental analysis and spectral data. These compounds were assayed for their antimicrobial activity against different bacterial strains like E. coli, B. subtilis, S. aureus, P. vulgaris, Shigella with encouraging results.
SYNTHESIS OF NOVEL N-(4-PHENYLIMINO)-N-[5-ARYL-9-THIA-2,3,5,7,8-PENTA AZABICYCLO [4.2.1] NONA-l(8), 6-DIEN-4-YLIDENE] AMINES AND THEIR ANTIMICROBIAL ACTIVITY

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The synthesis of 2-hydrazino-5-arylamino-1,3,4-thiadiazoles 3a-f have been achieved through two routes viz. by the direct condensation of thiocarbohydrazide with different aryl isothiocyanates 1 in refluxing ethanol medium as well as the intramolecular cyclization of 1-(N-aryl thioamido)-3-thiocarbohydrazides 2a-f in ethanol medium. The latter have been synthesized by the condensation of thiocarbohydrazide and different aryl isothiocyanates 1 in benzene medium and were found to be desulphurizable when boiled with alkaline lead acetate solution. Compounds 3a-f on reaction with N-phenyl isocyanodichloride in refluxing chloroform yielded N-(4-phenylimino)-N-[5-aryl-9-thia-2,3,5,7,8-pentaazabicyclo[4.2.1] nona-1(8), 6-dien-4-ylidene] amine hydrochlorides 4a-f, which were acidic to litmus and identified as monohydrochlorides on determination of equivalent weight by titrimetric analysis. The hydrochlorides 4a-f on basification with dilute ammonium hydroxide gave free bases 5a-f. The title compounds 5a-f on acylation with acetic anhydride in 1:2 ratio afforded diacetyl derivatives 6a-f and on reaction with sodium nitrite in acidic medium yielded dinitroso derivatives 7a-f.

The structures of all these synthesized compounds were established on the basis of chemical transformation, elemental analysis, equivalent weight determination and I.R. and P.M.R. spectral studies. The title compounds were also assayed for their antimicrobial activity using bacterial organisms, included both gram positive as well as gram negative strains like E. coli, S. aureus, B. subtilis, P. vulgaris and Shigella, which showed encouraging results.
SYNTHESIS OF 1,10-BIS(3-PHENYLIMINO-6-ARYL/ALKYL-IMINO-[1,2,4,5]-DITHIADIAZINAN-4-YL)-DECANE-1,10-DIONES AND THEIR ANTIMICROBIAL ACTIVITY

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The synthesis of series of 1,10-bis(3-phenylimino-6-aryl/alkyl-imino-[1,2,4,5]-dithiadiazinan-4-yl)-decane-1,10-diones 5\textsubscript{a-g} have obtained by the basification of their hydrochlorides 4\textsubscript{a-g} using dilute ammonium hydroxide solution. The latter have been synthesized by the interaction of N-phenyl-S-chloro isothiocarbamoyl chloride and bis(N-aryl/alkyl thiocarbamido) sebacic acid diamides 3\textsubscript{a-g} in refluxing chloroform medium for 3 hr. The reaction proceeded with evolution of hydrochloric acid gas. Cooling the reaction mixture and distilling off solvent yielded corresponding hydrochlorides 4\textsubscript{a-g}. The compounds 4\textsubscript{a-g} were acidic to litmus and on determination of equivalent weight by titrimetric analysis identified as monohydrochlorides. The compounds 3\textsubscript{a-g} were prepared initially by condensation of sebacic acid dihydrazide 1 and aryl/alkyl isothiocyanates 2\textsubscript{a-g} in 1:2 ratio using boiling chloroform as a solvent. The compounds 5\textsubscript{a-g} on acylation with acetic anhydride in 1:2 ratio gave diacetyl derivatives 6\textsubscript{a-g}.

The title compounds were also assayed for their antimicrobial activity and found to be moderately active against most of the bacterial organisms. The bacterial organisms used included both gram positive as well as gram negative strains like \textit{E. coli}, \textit{S. aureus}, \textit{B. subtilis}, \textit{P. vulgaris} and \textit{Shigella}. The structures of all these above synthesized compounds were established on the basis of chemical transformation, elemental analysis, equivalent weight determination and I.R. and P.M.R. spectral studies.